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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,149	01/17/2002	Jianbo Li	COS-796-CON	3128

7590 09/15/2003
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EXAMINER

MULLIS, JEFFREY C

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/052,149	LI ET AL.	
	Examiner	Art Unit	
	Jeffrey C. Mullis	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>117</u> . | 6) <input type="checkbox"/> Other: _____ |

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Applicants' reference "BC" (EP 007632) has not been considered since it has not been submitted.

Claims 1-7, 10 and 12-14 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitations "toughness retained of at least 30%" and "an elastomeric component of less than 28% by weight of polymer" are not disclosed in the specification as filed and are therefore new matter as recited in claim 1. The limitation that the grafting level is greater than 130% as recited in claim 14 and gel content of greater than 10% as in claim 13 was not present in the specification as filed and is therefore new matter.

Claims 1-7, 10, 12 and 14 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

The term "toughness retained" is not art recognized and is therefore unclear. The phrase "an elastomeric component of less than 28% by weight of polymer" is unclear in that the 28% figure could be interpreted as indicating that the elastomeric component is a polymer and the (elastomeric) polymer is present at a level

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of 28% or that the elastomeric component is present at a level of 28% compared to the weight of the polymer. If applicants intend that the elastomeric component is 28% based on polymer, it is not clear what polymer is intended since no "polymer" is recited in the claims except for the "polymer material" recited in the preamble which is presumed to refer to the entire polymeric composition.

It is not clear what units the grafting level in claim 14 are nor is there any generally art recognized grafting level parameter which is unitless.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sosa et al. (USP 4,861,827) optionally in view of Reddy et al. (USP 5,861,455) and Echte, cited by applicants and further optionally in view of Sanchez et al. (USP 5,762,149).

Sosa et al. disclose a process for producing HIPS in which two different initiators may be added to a reactor at column 3 lines 57-62. Peroxy ketals are the preferred initiators for use of a combination of initiators at column 5 line 61 - column 6 line 2 which may be used with the peroxy carbonates (patent claim 11). Note the paragraph bridging columns 5 and 6 which disclose that the specific peroxide to be used with the peroxy ketal may be determined depending on the rate of polymerization, degree of polymerization of reaction temperatures. Note that the free radical initiators include peroxy ketal compounds such as applicants' specific peroxy ketal compounds of the dependent claims at column 5 lines 63-65.

Sanchez et al. disclose a process for polymerizing styrene optionally in the presence of a rubber which requires a peroxy carbonate initiator (Abstract) and another initiator such as a peroxy ketal (column 11 line 21). Molecular weight may be adjusted by use of a specific combination of ketal and peroxy carbonate (note Example 17). It would have been obvious to a practitioner having ordinary skill in the art at the time of the invention to use a peroxy ketal in the process of Sosa et al. including the specific peroxy ketals of the dependent claims (i.e. claims 3 and 9) which are disclosed by Sosa et al. since Sosa et al. specifically disclose the peroxy ketals are preferred and furthermore to use peroxy carbonate with this initiator since

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Sosa et al. discloses that the peroxy carbonates may also be used as part of a combination of initiators and in the expectation of adequate results absent any showing of surprising or unexpected results. Further motivation to arrive at applicants' specific combination of perketal and peroxy carbonate is of the disclosure of Sosa et al. that choice of a specific combination of perketal and a second initiator may be chosen to maximize process parameters and to increase molecular weight absent any showing of surprising or unexpected results.

Although it is the position of the Examiner for the reasons set out above that the invention is obvious over Sosa et al. alone, it would have also been obvious to a practitioner having ordinary skill in the art at the time of the invention to use applicants' specific combination of peroxy ketal and peroxy carbonate in the process of Sosa et al. as taught by Sanchez et al. since Sanchez et al. specifically disclose that such a combination may be used to adjust the molecular weight of the polystyrene absent any showing of surprising or unexpected results.

Reddy et al. disclose that environment stress crack resistance improves upon addition of polyisobutylene and mineral oil.

The primary reference does not disclose the addition of polyisobutylene and/or mineral oil to increase ESCR.

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It would have been obvious to a practitioner having ordinary skill in the art at the time of the invention to add polyisobutylene and/or mineral oil to the composition of the primary reference in order to increase ESCR, such an advantage being disclosed by the secondary reference absent any showing of surprising or unexpected results.

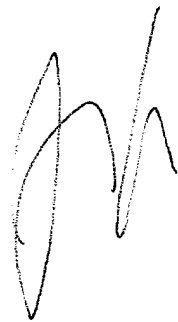
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Mullis whose telephone number is (703) 308-2820. The examiner can normally be reached on Monday-Friday from 9:30 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on (703) 308-2462. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

J. Mullis:cdc

September 4, 2003



Jeffrey Mullis
Primary Examiner
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